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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,488	11/06/2003	Takeshi Iwasaki	008312-0306632	8561

909 7590 10/18/2005

PILLSBURY WINTHROP SHAW PITTMAN, LLP  
P.O. BOX 10500  
MCLEAN, VA 22102

EXAMINER
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RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/701,488	<b>Applicant(s)</b> IWASAKI ET AL.	
	<b>Examiner</b> Holly Rickman	<b>Art Unit</b> 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/4/05</u> | 6) <input type="checkbox"/> Other: _____  |

*KL*

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The rejection of claim 6 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicant's amendments.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The rejection of claims 1-4 and 6 under 35 U.S.C. 102(b) as being anticipated by Lairson et al. (US 5834085) is withdrawn in view of Applicant's amendments.

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Moroishi et al. (US 6287429).

Moroishi et al. disclose a method of making a magnetic recording medium including forming a perpendicular magnetic layer formed from CoPtMo on a substrate at a temperature of 400 °C (values between about 100 and 400 °C disclosed) wherein the Mo segregates to the grain boundaries (see col. 2, lines 55-60 col. 8, line 32 to col. 10, line 22).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lairson et al. (US 5834085) in view of JP 05/325183 (see attached machine translation).

Lairson et al. disclose a method of making a perpendicular magnetic recording medium having multiple layers deposited at a temperature of preferably up to 300 °C on a substrate wherein the magnetic layers are formed from CoPt and additive elements such as W wherein the additive elements form grain boundaries segregating Co magnetic grains (see Fig 3; col. 3, lines 44-46; col 4, lines 47-67; col. 5, line 1 to 50). The reference fails to disclose the claimed temperature range of 320-450 ° C or 320-380 ° C.

JP 05-325183 teaches that it is known in the art that the segregation of a non-magnetic element such as Cr in a Co alloy magnetic layer is promoted by raising the substrate temperature above 250 °C to a maximum of about 600 °C (paragraphs 8 and 12-13).

It would have been obvious to one of ordinary skill in the art at the time of invention to increase the substrate temperature of the medium taught by Lairson et al. in order to achieve maximum decoupling of grains as suggested by therein and in JP 05-325183. Choosing a suitable value from within the temperature range disclosed by JP 05-325183 would have been obvious since substrate temperature affects grain segregation and it has been held that discovering an optimum

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value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lairson et al. in view of JP 05/325183, as applied above, and further in view of Chen (US 6524730).

Lairson et al. fail to teach the soft magnetic layer as required by claim 5.

Chen teaches that it is known in the art to deposit a soft magnetic layer on a substrate in a perpendicular magnetic recording medium in order to provide a path for magnetic flux emanating from a magnetic head (col. 3, lines 15-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a soft magnetic underlayer on the substrate taught by Lairson et al. in order to improve writing efficiency by providing a flux return path for the magnetic head.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moroishi et al. (US 6287429).

Moroishi et al. disclose all of the limitations of the claims as detailed above, except for the claimed range of 320-380 ° C. The reference teaches that temperatures between 100 and 400 are suitable for use in sputtering the layers of the disclosed recording medium. It would have been obvious to one of ordinary skill in the art at the time of invention to choose a suitable temperature from within the disclosed range in view of the apparent functional equivalence of all values within the disclosed range.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized flourish at the end.

Holly Rickman  
Primary Examiner  
Art Unit 1773